DEPARTMENT of AGRICULTURE and NATURAL RESOURCES
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RECOMMENDATION OF CHIEF ENGINEER FOR FUTURE USE WATER PERMIT APPLICATION NO. 8754-3, Lewis and Clark Regional Water System

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Future Use Water Permit Application No. 8754-3, Lewis and Clark Regional Water System, Troy Larson, Executive Director, 46986 Monty Street, Tea SD 57064.

The Chief Engineer is recommending APPROVAL of Application No. 8754-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) Lewis and Clark Regional Water System has demonstrated a reasonable need to reserve water in the amount of 19,121 acre feet of water annually, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Future Use Permit No. 8754-3 reserves 19,121 acre-feet of water annually from the Missouri:Elk Point aquifer.
2. Future Use Permit No. 8754-3 is approved with the stipulation that this Permit is subject to review by the Water Management Board as to accomplishment in developing reserved water upon expiration of seven (7) years. This Permit shall be subject to cancellation if the Water Management Board determines during the review that the holder cannot demonstrate a reasonable need for the Permit.
3. At such time as definite plans are made to construct works and put the water reserved by this permit to beneficial use, specific application for all or any part of the reserved water must be submitted prior to construction of facilities pursuant to SDCL 46-5-38.1.

See report on application for additional information.

Eric Gronlund

Eric Gronlund, Chief Engineer
May 23, 2023

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 8754-3
LEWIS & CLARK REGIONAL WATER SYSTEM
C/O TROY LARSON, EXECUTIVE DIRECTOR
MAY 13, 2023

Water Permit Application No. 8754-3 for Lewis & Clark Regional Water System (L&C RWS) proposes to appropriate and reserve for future use 19,121 acre-feet of water annually (ac-ft/yr) from the Missouri: Elk Point aquifer. The water is reserved for future water supplies for a rural water system. The area for future use is the S ½ Section 15 and Section 22; all in T32N-R4E of the 6th Prime Meridian commonly referred to as the Nebraska Survey. This application, if approved, does not authorize construction of works or application of water to beneficial use. The system serves twenty public water systems located in Turner, Lincoln, Minnehaha, Clay, McCook, Union, and Lake Counties in South Dakota; Lyon, Sioux, Osceola, and O'Brien Counties in Iowa; Rock and Nobles Counties in Minnesota. The future use area is located approximately 3 miles southwest of Vermillion, South Dakota.

AQUIFER: Missouri: Elk Point (M:EP)

Aquifer Characteristics:
The Elk Point management unit of the Missouri aquifer, also known as the Missouri: Elk Point aquifer, is a deposit of quaternary aged glacial outwash and alluvium lying within the Missouri River flood plain from the Yankton area to the southeastern tip of South Dakota (Niehus, 1994; Stephens, 1967). The Missouri: Elk Point underlies approximately 219,100 acres of Clay, Union, and Yankton Counties in South Dakota and contains an estimated 3,287,100 ac-ft of recoverable water in storage (Hedges et al, 1982). The aquifer is hydrologically connected to the Lower Vermillion Missouri, Lower James Missouri, Big Sioux, and Dakota aquifers as well as the Big Sioux, James, Vermillion, and Missouri Rivers (Niehus, 1994; Stephens, 1967).

In general, the Missouri: Elk Point aquifer is under unconfined conditions, but there can be locally confined or semiconfined conditions (Condley and Lamkey, 2022; Niehus, 1994 and 1997; Water Rights, 2023b and 2023d). Water movement in the aquifer is generally toward the southeast (Niehus, 1994). At the future use area this application proposes to use, the aquifer is under unconfined conditions (Water Rights, 2023b and 2023d). In the proposed future use area, aquifer material (sand and gravel) is typically found within 5 feet of land surface and with a total thickness in the 100 to 120 feet (SDGS, 2023; Water Rights, 2023d). The static water level in the area is typically between 15 and 25 feet below land surface (Water Rights, 2023b and 2023d). Figure 1 shows a map of the approximate Missouri: Elk Point aquifer boundary (Steen, 2022) with observation wells (Water Rights, 2023b) and location of the proposed future use area.

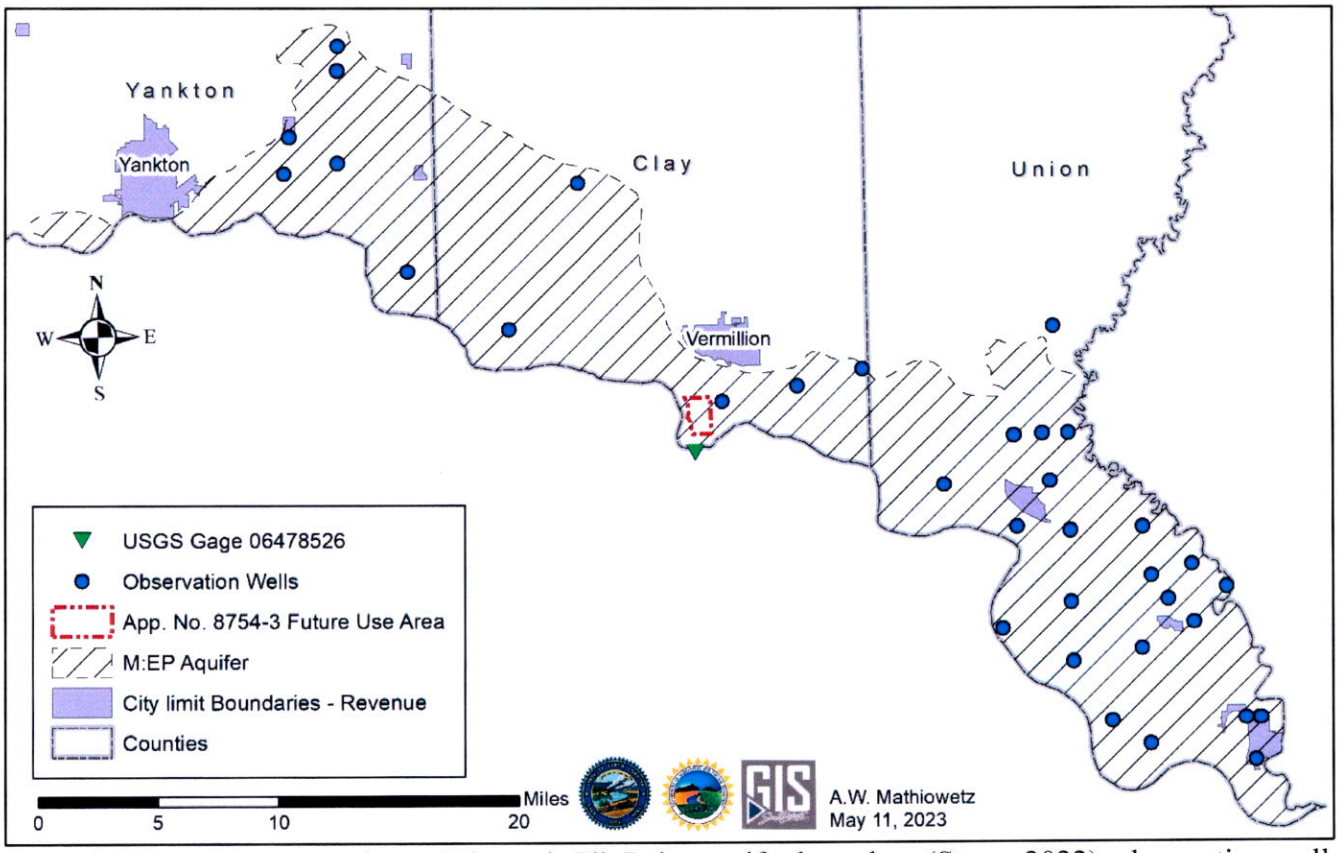

Figure 1- Map of the approximate Missouri: Elk Point aquifer boundary (Steen, 2022), observation wells (Water Rights, 2023b), USGS Missouri River gage (USGS, 2023) and L&C RWS proposed future use area for App. No. 8754-3

SOUTH DAKOTA CODIFIED LAW (SDCL) 46-2A-10 & 46-5-20.1

Pursuant to SDCL 46-2A-10, "A reservation for a future use may be approved only if there is a reasonable probability that unappropriated water is available for appropriation, that the quantity of water reserved will be needed by the entity and that the proposed use will be a beneficial use and in the public interest." This report will address the availability of unappropriated water and from the Missouri: Elk Point aquifer and if the quantity of water to be reserved is needed by the applicant.

Pursuant to SDCL 46-5-20.1, in short, any appropriation in excess of ten thousand acre-feet annually shall be presented by the Water Management Board to the Legislature for approval prior to the board's acting upon the application. However, this requirement does not apply if the applicant is a South Dakota Conservancy District or for applications to use water for energy industry use. The applicant is a regional water system and is therefore not a conservancy district or energy industry user. Thus, this application must be presented to the Legislature for approval prior to the Water Management Board acting upon it.

WATER AVAILABILITY:

This application proposes to appropriate water from the Missouri: Elk Point aquifer. The probability of unappropriated water being available from the aquifer can be evaluated by considering SDCL 46-6-3.1, which requires the amount of water withdrawn annually to not exceed the average estimated recharge unless the aquifer is older or lower than the Greenhorn Formation and the applicant is a water distribution system. The applicant is a water distribution system as defined in SDCL 46-1-6(17). However, the

Missouri: Elk Point aquifer is not stratigraphically lower/older than the Greenhorn Formation (Fahrenbach et al, 2010). Therefore, a comparison of average annual recharge and average annual withdrawals from the Missouri: Elk Point aquifer is required for this application.

Observation Well Data:
Administrative Rule of South Dakota Section 74:02:05:07 requires that the Water Management Board shall rely upon the record of observation well measurements in addition to other data to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge of the aquifer.

The Water Rights Program maintains 36 observation wells completed into the Missouri: Elk Point aquifer (Water Rights, 2023b). Figure 2 shows the hydrographs for the 6 Missouri: Elk Point aquifer observation wells located within approximately 10 miles of the applicant's proposed future use area and a USGS Missouri River gage (06478526) near Maskell, NE. From the applicant's future use area, observation well CL-80A is 10 miles north-northwest, CL-80B is 7.9 miles northwest, CL-80C is 0.5 miles east, CL-80D is 3.7 miles east, CL-80E is 6.5 miles east-northeast, UN-77L is 10 miles east-southeast and the USGS Missouri River gage is approximately 0.8 miles south (Water Rights, 2023b and 2023c). The hydrographs are representative of the hydrographs for the other observation wells completed into the aquifer and are representative of the aquifer.

The hydrographs show water levels respond well to climatic conditions, rising during wetter periods (early spring snowmelt and precipitation) and declining to stable levels during drier periods. The hydrographs show that any drawdown created by pumping is temporary with water levels recovering to pre-pumping levels after the irrigation season. In most instances, pumping drawdowns are not even distinguishable from the effects caused by natural conditions on water levels, including the effects on the aquifer caused by changes in the water level of the Missouri River.

Several of the Missouri: Elk Point aquifer observation well hydrographs show a gradual long-term downward trend especially those close to the Missouri River. This downward trend is caused by entrenchment of the Missouri River bed and in some places a widening of the channel leading to lower water levels despite the river having the same rate of flow (Elliott and Jacobson, 2022). The lowering of the water level in the Missouri River downstream of the Gavins Point Dam and the subsequent lowering of the water level of Missouri: Elk Point aquifer observation wells in close proximity to the river show the strong hydrologic connection between the Missouri River and the Missouri: Elk Point aquifer. This is demonstrated by the very similar water levels between the aquifer and river as shown in the hydrographs in Figure 2. The lowering of the water levels in the aquifer, especially in close proximity to the Missouri River, is not a sign of over appropriation of the Missouri; Elk Point aquifer. The observation well water levels simply show the connection between the river and the aquifer and how the aquifer reacts to climatic conditions without showing any long-term effects from pumping. Therefore, there is a reasonable probability unappropriated water is available for this proposed appropriation based on observation well data.

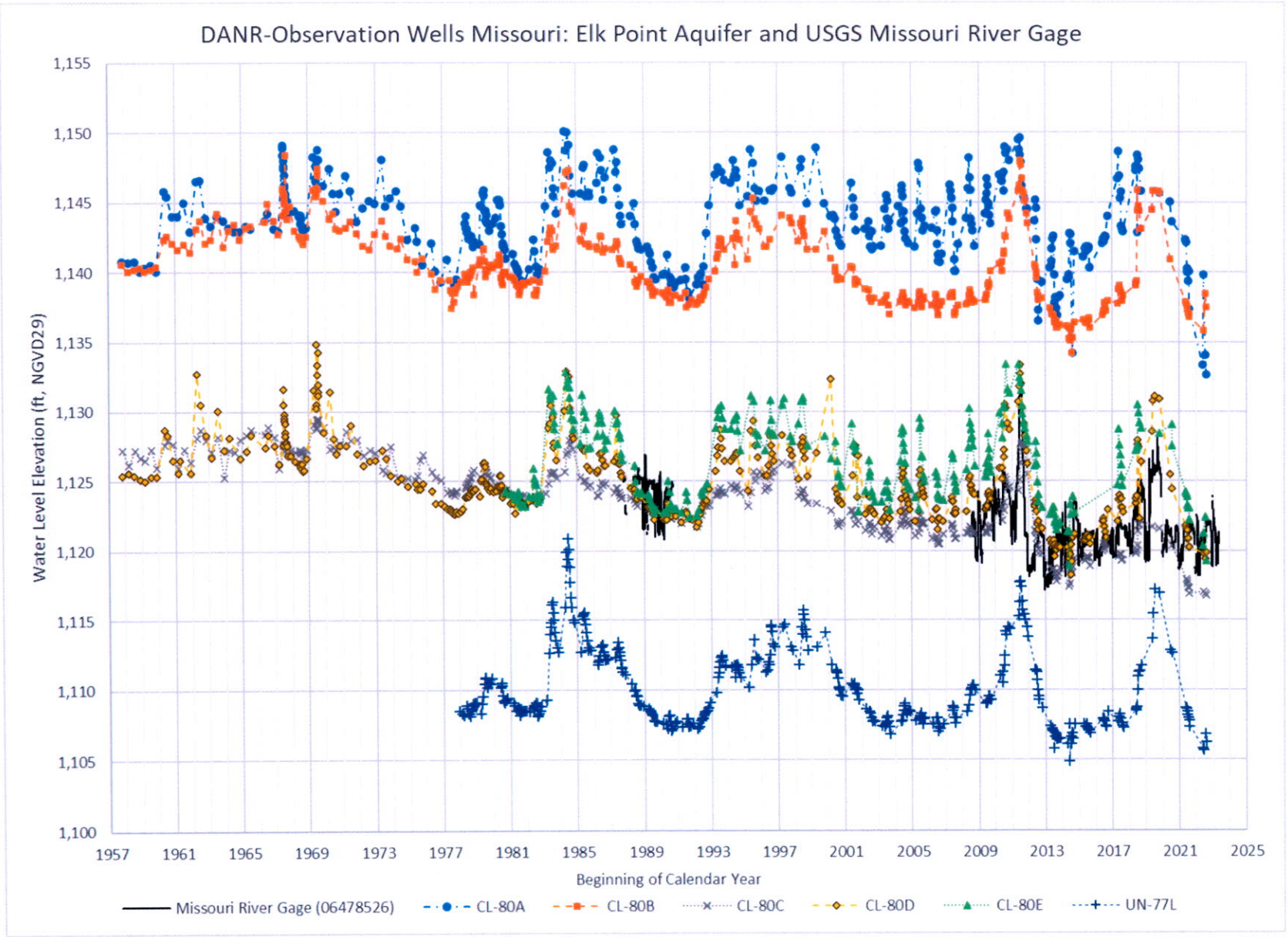

Figure 2- Hydrographs for DANR Missouri: Elk Point aquifer observation wells within approximately 10 miles of the L&C RWS future use area for Application No. 8754-3 and the USGS Missouri River Gage at Maskell, NE (USGS, 2023; Water Rights, 2023b)

Hydrologic Budget

Recharge

The Missouri: Elk Point aquifer is recharged by infiltration of precipitation, groundwater inflow from the Lower Vermillion Missouri, Lower James Missouri, and Big Sioux aquifers along its northern edges and the underlying Dakota aquifer in Union County, seepage from the Missouri, Vermillion, James and Big Sioux Rivers, and induced recharge from the Missouri River (Bugliosi, 1986; Condley and Lamkey, 2022; Niehus, 1994). There have been several studies completed to estimate average annual recharge to the Missouri: Elk Point aquifer (Condley and Lamkey, 2022; Hedges et al, 1985; Mathiowetz, 2022; Stephens, 1967; Stonesifer, 2013).

The estimated recharge rate to the Missouri: Elk Point aquifer, 3.8 inches/year (in/yr), was first estimated by Hedges and others (1985) using observation well analysis. Applying that recharge rate over the approximate aquifer extent of 219,100 acres yields an annual average recharge estimate of 69,382 ac-ft/yr. The data used for observation well analysis represents both withdrawals from and recharge to the aquifer simultaneously. Therefore, observation well analysis always produces an estimated recharge rate less than the actual recharge rate.

The wells for the L&C RWS induce recharge to the aquifer from the Missouri River (Condley and Lamkey, 2022; Stonesifer, 2013). Stonesifer (2013) estimated at least 50% of L&C RWS pumping in the well field this application proposes to use, also known as Mulberry Bend Well Field, will be induced recharge from the Missouri River. The SD DANR-Geological Survey conducted a study to more accurately quantify the percentage of induced recharge from L&C RWS's well field (Condley and Lamkey, 2022). A numerical model was created to determine the source water, either groundwater or induced river water, for each well of the 11 wells in existence during the model period (Condley and Lamkey, 2022). A 31-day and a 365-day model run where conducted. During the 31-day model run, it was determined 71.1% of the water pumped from the wells is river water. During the 365-day run, it was determined 84.6% of the water pumped from the well field was river water. The capture zone for the 365-day model run did not extend more than one mile from the river. L&C RWS is currently permitted to pump 53,442 ac-ft/yr and this application proposes reserving 19,121 ac-ft/yr for a total of 72,563 ac-ft/yr (Water Rights, 2023c). Assuming 84.6% capture and full development of existing L&C RWS water rights/permits and this application, that equates to 61,388.2 ac-ft/yr captured as induced recharge from the Missouri River.

Furthermore, the City of Yankton contracted with HDR Engineering to conduct a study for siting a collector well to be authorized under Water Right No. 8212-3 (Water Rights, 2023c). Part of the study was determining the water quality which included trying to determine the source water supply, induced Missouri River water or groundwater from the Missouri: Elk Point aquifer. While the amount of induced surface water was not modeled, it was estimated that induced surface water to the well would be in the range of 40% to 90% (HDR, 2014). This estimate is supported by the Condley and Lamkey (2022) study on the L&C RWS well field. Water Right No. 8212-3 authorizes the pumping of up to 6,050 ac-ft/yr (Water Rights, 2023c). There are also many irrigation water right/permit wells within one mile of the Missouri River that withdraw water from the Missouri: Elk Point aquifer (Water Rights, 2023c). It is highly likely some of those irrigation water right/permit wells induce recharge from the Missouri River. There may also be induced recharge from the James, Vermillion, and Big Sioux Rivers. These have yet to be quantified and would likely be very small compared to the induced recharge from the Missouri River.

Combining the recharge from Hedges and others (1985) determined through observation well analysis (69,382 ac-ft/yr) and the induced recharge from the L&C RWS well field plus what would be induced as this application is developed (Condley and Lamkey, 2022; Water Rights, 2023c), and assuming full development of L&C RWS's current water rights/permits, future use permits and this application, (61,388.2 ac-ft/yr) equates to an estimated average annual recharge of 130,770.2 ac-ft/yr.

Discharge:

Discharge from the Missouri: Elk Point aquifer occurs through evapotranspiration where the aquifer is at or near land surface, well withdrawals, leakage to the underlying Dakota aquifer, and outflow to the Missouri, Vermillion, James, and Big Sioux Rivers (Bugliosi, 1986; Niehus, 1994; Water Rights, 2023c and 2023d). Currently, there are 647 water rights/permits appropriating water plus 5 future use permits reserving water from the Missouri: Elk Point aquifer (Water Rights, 2023c). Currently, there are four pending applications, including this application (Application Nos. 8727-3, 8739-3, and 8744-3), to appropriate water from the Missouri: Elk Point aquifer. Application No. 8727-3 proposes 10 acres of turf irrigation for a golf course. Application No. 8739-3 proposes to irrigate 80 acres of crops. Application No. 8744-3 proposes to initially fill a proposed canal (20.61 acre-feet) which connects to McCook Lake and provide up to 7.99 acre-feet annually to ensure a wetted bottom to protect the liner of the canal. Future use permits currently reserve 1,900 ac-ft/yr of water from the Missouri: Elk Point aquifer (Water Rights, 2023c). The future use permits reserving no water means that water reserved under the permit has already been put to use under a water right/permit.

Table 1- Future use permits reserving water from the Missouri: Elk Point aquifer (Water Rights, 2023c)

PERMIT NO.	NAME	PRIORITY DATE	USE	AC-FT
5832-3	LEWIS & CLARK RWS	07/08/1994	RWS	0
6237-3	CITY OF VERMILLION	11/06/2000	MUN	1,900
6869-3	LEWIS & CLARK RWS	07/16/2007	RWS	0
6869A-3	LEWIS & CLARK RWS	07/16/2007	RWS	0
7208-3	LEWIS & CLARK RWS	07/13/2010	RWS	0
			TOTAL	1,900

A summary of non-irrigation water rights/permits is shown in Table 2 along with estimated average annual pumpage for each water right/permit. For permits limited to an annual volume, it is assumed that the full volume will be pumped. For permits that are required to report annual pumpage and not limited by an annual volume, the average annual reported pumpage is used. Note that for Water Permit Nos. 5998-3, 5998A-3 and 7388-3, the average over their respective periods of time represents the permit(s) having been fully developed with relatively stable annual pumpage. Furthermore, the turf irrigation use under Water Permit Nos. 5998-3 and 5988A-3 is reported with the non-irrigation water use under Water Permit No. 7388-3. Several water distribution systems purchase water from other systems and maintain their wells for standby purposes (Friedeman, 2022; Water Rights 2023c). The water use under those permits is negligible and assumed to be zero for this hydrologic budget.

Table 2- Non-irrigation Missouri: Elk Point aquifer water rights/permits (Water Rights, 2023c)

Permit No.	County	Status	Use	Name	CFS	Permitted Vol. (ac-ft/yr)	Estimated/Reported Pumpage (ac-ft/yr)
8415-3	YA	PE	COM	3 SONS PROPERTIES LLC	0.100	25	
5453-3	UN	LC	IND	AALADIN INDUSTRIES INC	0.050		21.7
5616-3	YA	LC	COM	CIMPLS INC	0.440		191.2
5998-3	UN	PE	DOM; IRR	CLAY RURAL WATER SYSTEM INC	2.200		
5998A-3	UN	PE	DOM; IRR		0.000		346.2[A]
7388-3	UN	PE	DOM; IRR		2.000		
5437-3	UN	LC	MUN	DAKOTA DUNES COMM IMPROVEMENT DISTRICT	3.330		1447.4
8031-3	CL	PE	COM	DAKOTA PROTEIN CONVERSION INC	0.220		96.0
5592-3	YA	LC	SHD	EAST WINDS COURT INC	0.110		0[B]
5953-3	YA	LC	COM	H & K OIL CO	0.037		16.1
6170-3	YA	LC	IND	KNIFE RIVER	0.222		96.5
5581-3	YA	LC	SHD	LARSON'S LANDING	0.089		38.7
6736-3	CL, TU, LN	PE	RWS	LEWIS & CLARK RWS	27.850	20,165	
7207-3	CL	PE	RWS		20.000	12,000	
8613-3	CL	PE	WDS		29.760	13,000	
8614-3	CL	PE	RWS		0.000	8,277	
8381-3	UN	PE	COM	R P CONSTRUCTORS	0.040	1	
8435-3	UN	PE	COM	SIOUX CITY INSULATION	0.330	1	
8403-3	YA	PE	COM	STOCKMEN'S LIVESTOCK INC	2.000	40	
5907-3	YA	LC	FWP	US FISH/WILDLIFE SERVICE	3.780		1,642.9
6733-3	YA	LC	FWP		1.110		482.5
7094-3	YA	LC	FWP		2.670		1,160.5
5490-3	YA	LC	FWP	US GEOLOGICAL SURVEY	0.090		39.1
5021-3	YA	LC	IND	VISHAY-DALE ELECTRONICS INC	0.100		43.5
5593-3	YA	LC	IND		0.056		24.3
7059-3	UN	PE	REC	WE INVESTMENTS LLC	3.110		18.7[C]
6580-3	UN	LC	COM	WEST SHORE ACRES LLC	0.100		43.5
1255-3	UN	LC	MUN	CITY OF ELK POINT	1.130		491.1
5782-3	UN	LC	MUN	CITY OF NORTH SIOUX CITY	1.140		495.5
143-3	CL	LC	MUN	CITY OF VERMILLION	1.780		773.7
147-3	CL	LC	MUN		2.660		1236.9[D]
6236-3	CL	LC	MUN		2.600		
6354-3	CL	LC	MUN		0.022		9.6
8212-3	YA	LC	MUN	CITY OF YANKTON	20.120	6,050	
5827-3	UN	LC	COM	DON LANTIS	0.022		9.6
8147-3	UN	PE	COM; LCO	DOUG LAFLEUR	1.000	160	
4501-3	YA	LC	COM	EDDIE WOHL	0.050		21.7
6744-3	CL	PE	DOM; COM	JUDITH I GRANT	0.780		339.0
5388-3	UN	LC	IND	L G EVERIST INC	0.450		195.6
1965-3	YA	LC	MUN	TOWN OF GAYVILLE	0.370		0[B]
5118-3	YA	LC	MUN		0.330		0[B]
4207-3	UN	LC	MUN	TOWN OF JEFFERSON	0.900		391.2
6151-3	UN	LC	COM	VERNON & NORMA VAKOC	0.670		291.2
					TOTAL	***69,682.9***	

CL= Clay, LN= Lincoln, UN= Union, YA=Yankton; LC=Water Right, PE= Water Permit; COM= Commercial, DOM= Domestic, FWP= Fish & Wildlife Propagation, IND= Industrial, IRR= Irrigation, LCO= Livestock Confinement Operation, MUN= Municipal, REC= Recreation, RWS= Rural Water System, SHD= Suburban Housing Development, WDS= Water Distribution System

A= 2012-2021 avg.; B= Standby; C= Evaporative consumption; D= 2003-2021 avg.

Water Permit No. 7059-3 is for recreational use to maintain the water level of a small lake with a surface area of 17.6 acres (Water Rights, 2023c). It is assumed the only consumptive use of water is due to evaporation. Annual evaporation of water from shallow lakes in this area is estimated to be 42 inches per year (NOAA, 1982) and the average annual total precipitation at the Sioux City, IA airport was determined to be 29.27 inches over the 30-year period of 1991 to 2020 (NOAA, 2022). That is an annual average consumptive use of 18.7 ac-ft/yr. The remaining non-irrigation permits are assumed to pump at their permitted diversion rates 60% of the time including Water Right No. 5437-3 which was licensed for a reduced diversion rate which prevents pumping the allotted volume of water specified on the permit. This is a method developed by DANR-Water Rights Program engineers for estimating average annual withdrawals that is a safe and conservative method to likely somewhat overestimate use for those permits (Water Rights, 2023c). Estimated average annual pumpage by non-irrigation appropriations plus the ongoing use for pending Application No. 8744-3 is 69,690.9 ac-ft/yr.

There are 607 water rights/permits authorized to withdraw water from the Missouri: Elk Point aquifer primarily for irrigation purposes plus 2 pending irrigation applications (Water Rights, 2022). Water Permit Nos. 5998-3 and 5998A-3 are accounted for in Table 1 with the non-irrigation water rights/permits as the permit holder is not required to submit an annual irrigation questionnaire (Water Rights, 2023c). Irrigation water rights/permits have typically been required to report their annual pumpage on an irrigation questionnaire since 1979. Farmer (2018 and 2021) analyzed the amount of water pumped per permitted acre for the period from 1979 to 2005. This period was chosen due to the relatively stable number of permitted acres across the entire period. There was a continual annual increase in the number of permitted acres from 2006 to 2013/2014 (see Figure 3). Since 2013/2014 the total number of permitted acres has been relatively stable. However, there has been an uptick in the number of applications in the last year. Farmer (2021) determined that it would be best to separate the review of pumpage per permitted acres between crops, such as corn and soybeans, and turf, such as golf courses and lawn irrigation, to describe the pumpage more accurately per permitted acres. Turf irrigation typically requires more water per acre annually than crop irrigation. Figures 3 and 4 show the annual reported irrigation pumpage and permitted acres for crop irrigation from 1979 to 2021 (Figure 3) and turf irrigation (Figure 4).

The average annual pumpage rate from 1979-2021 is 18,703.2 ac-ft/yr (Water Rights, 2023a). When considering the 2012-2021 average annual pumpage, which is likely to be more reflective of current management and irrigation practices, the average annual reported pumpage is 27,247.35 ac-ft/yr (Water Rights, 2023a). The application rate per permitted acre for the 1979-2005 period was determined to be 0.343 ft/yr for crops and 0.97 ft/yr turf (Farmer, 2021). Across the entire period of record, 1979 through 2021, the crop application rate per permitted acre is 0.331 ft/yr (3.97 in/yr) and 0.908 ft/yr for turf (10.9 in/yr) (Mathiowetz, 2022).

Currently, there are 82,306.5 acres authorized for crop irrigation plus 80 acres for pending Application No. 8739-3 for a total of 82,386.5 acres (Water Rights, 2023c). There are 809.6 acres plus 10 acres proposed by Application No. 8727-3 for turf irrigation equaling a total of 819.6 acres (Water Rights, 2023c). Using the 1979-2021 application rate per permitted acre rates, the average annual use for crop irrigation is expected to be 27,269.9 ac-ft/yr and 744.2 ac-ft/yr for turf irrigation by current and pending applications. That is a total estimated average annual irrigation usage of 28,014.1 ac-ft/yr.

There are a number of domestic wells that withdraw water from the Missouri: Elk Point aquifer (Water Rights, 2023d). The withdrawal rate is limited to a daily average rate of 18 gallons per minute and typically

are not used continuously. Furthermore, over much of the area of the Missouri: Elk Point aquifer there are rural water systems and other water distribution systems available, so many of these wells may no longer be in use. The annual quantity of water withdrawn for domestic use is considered to be negligible to the overall hydrologic budget of the aquifer.

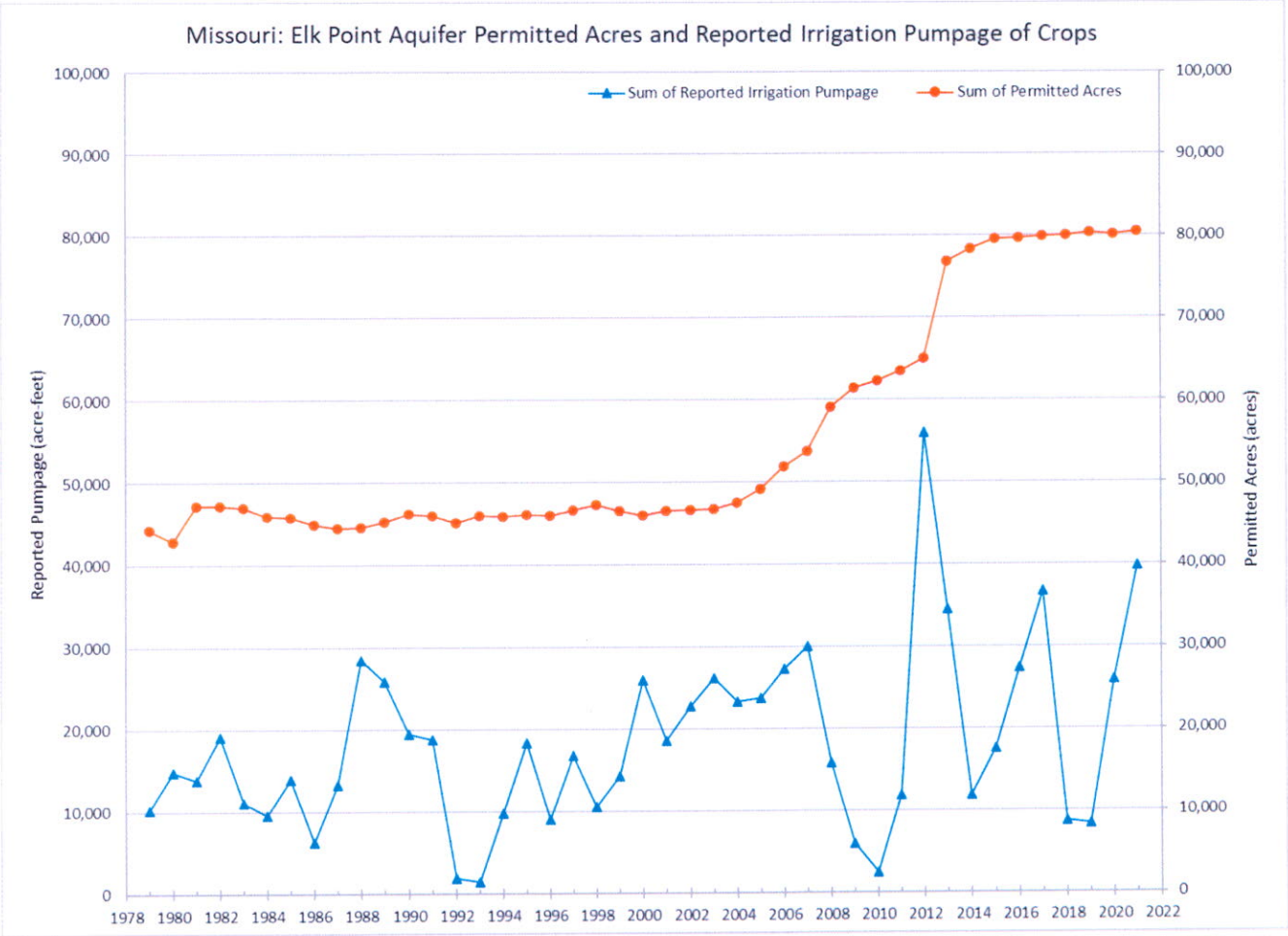

Figure 3- Permitted acres and reported pumpage for crop irrigation 1979-2021 (Water Rights, 2023a)

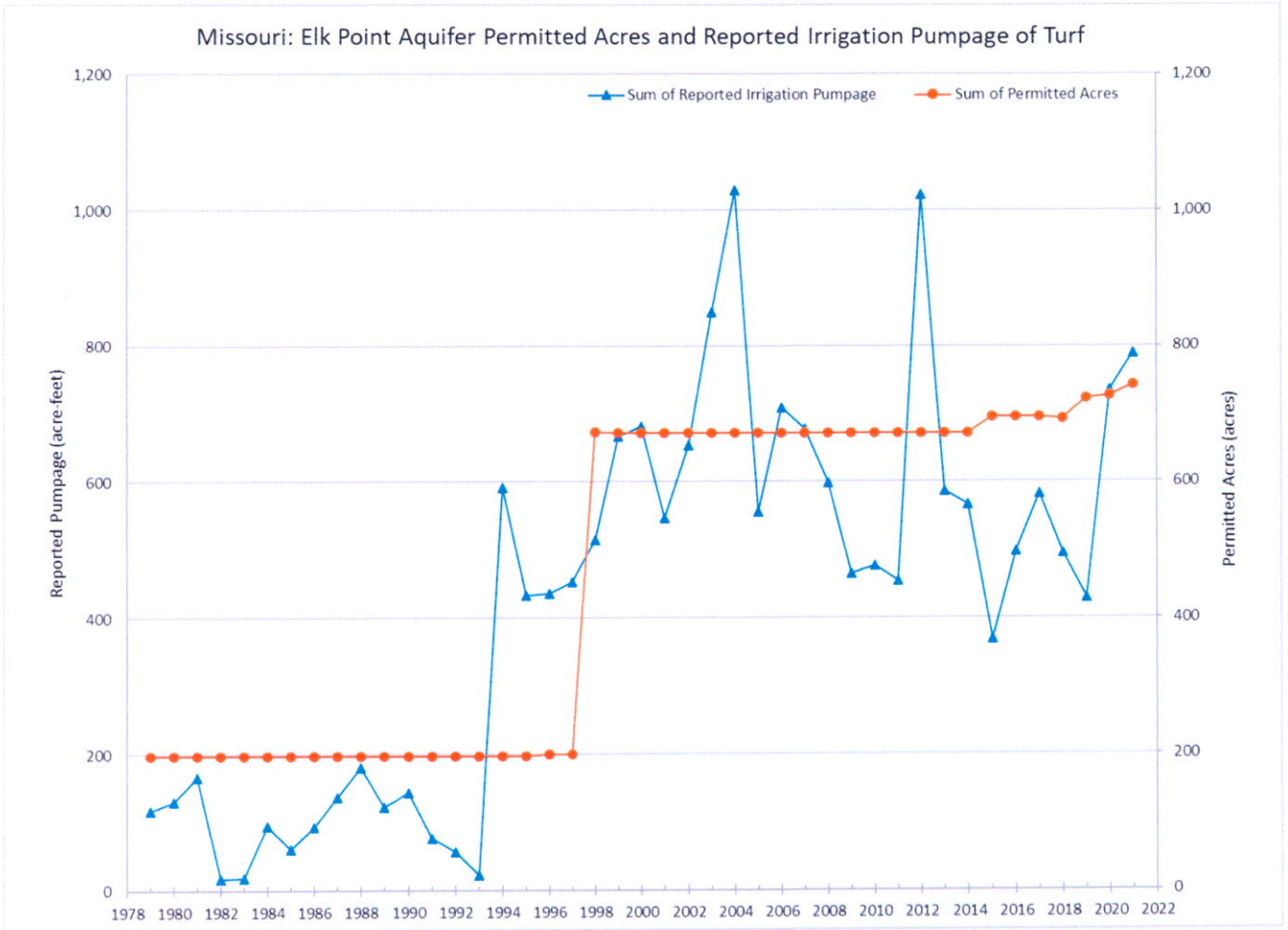

Figure 4- Permitted acres and reported pumpage for turf irrigation 1979-2021 (Water Rights, 2023a)

Balance of Hydrologic Budget

The estimated average annual recharge to the Missouri: Elk Point aquifer is 130,770.2 ac-ft/yr. The estimated average annual withdrawals from the Missouri: Elk Point aquifer, assuming approval of this application and the three other pending irrigation applications is 118,276 ac-ft/yr (1,900 ac-ft/yr future use; 69,690.9 ac-ft/yr non-irrigation; 28,014.1 ac-ft/yr irrigation, including pending applications; and 19,121 ac-ft/yr this application). Based on the hydrologic budget, there is a reasonable probability there is unappropriated water available for this proposed appropriation. This conclusion agrees with the information shown by the observation well data.

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Pursuant to SDCL 46-2A-10, future use applications are not reviewed for the potential for unlawful impairment of existing rights since approval of a future use reservation does not authorize construction of works or application of water to beneficial use. If this application is approved and an application is filed to put the reserved water to beneficial use, then there will be a review of the potential for unlawful impairment of adequate domestic wells and existing water rights/permits with adequate wells.

NEED FOR REQUESTED QUANTITY OF WATER

As a condition to reserve water for future use, SDCL 46-2A-10 requires a showing that the quantity of water to be reserved will be needed. Currently, L&C RWS has water permits appropriating 53,442 ac-ft/yr. The desired system capacity is 60 million gallons per day (MGD) which requires a total annual volume of 72,563 ac-ft/yr. This increase in annual volume is needed to supply current and future demand as the system completes its targeted expansion by 2030/2031 as explained in a letter from Troy Larson, Executive Director of the system, included with the application. Based on this information, water reserved by this application will be needed by L&C RWS to meet future demands.

CONCLUSIONS:

1. Application No. 8754-3 proposes to reserve for future use 19,121 ac-ft/yr from a future use area located in the S ½ Section 15 and Section 22; all in T32N-R4E of the 6th Prime Meridian commonly referred to as the Nebraska Survey. This site is located approximately 3 miles southwest of Vermillion, South Dakota.

2. Pursuant to SDCL 46-5-20.1, this application, because it is in excess of 10,000 ac-ft/yr and does not meet the exceptions in the law, is required to be presented by the Water Management Board to the Legislature for approval prior to the Board acting upon the application.

3. Based on the observation well data and a hydrologic budget, there is a reasonable probability unappropriated water is available for this proposed appropriation.

4. Pursuant to SDCL 46-2A-10 potential for unlawful impairment is not reviewed as part of a future use application but will be reviewed at the time an application is filed to place water reserved by this application to beneficial use.

5. The applicant has shown there is a need to reserve the requested amount of water to serve current and future water system needs.

Adam Mathiowetz, PE
SD DANR-Water Rights Program

REFERENCES:

Bugliosi, E.F. 1986. Water Resources of Yankton County, South Dakota. Water-Resources Investigations Report 84-4241. U.S. Geological Survey. Huron, South Dakota.

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